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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re the Application of: Group Art Unit: 1621
CAROLE LE BERRE et al Examiner: K. Puttlitz
Serial No.: 09/807,434 MAIL STOP AFTER FINAL
Filed: April 23, 2001

For: METHOD FOR PREPARING ACETIC ACID AND/OR METHYL
ACETATE IN THE PRESENCE OF IRIIDIUM AND PLATINUM

RESPONSE

Honorable Commissioner for Patents
PO Box 1450
Alexandria, VA 22313-1450

Sir:

Applicants' attorney is appreciative of the interview granted by the Examiner on October 14, 2004. At that interview, differences between the claimed invention and the art of record was discussed in detail.

The following remarks are submitted in response to the Final Office Action mailed July 2, 2004.

The allowability of Claims 31 through 58 has been noted.

Claims 59 through 76 and 79 through 86 have been rejected under 35 USC 103(a) over WO 98/33759 (WO '759).

The invention of the rejected claims is directed to a process for preparation of acetic acid, methyl acetate or both, by carbonylation of methanol in a liquid phase reaction medium in the presence of water, a solvent, a homogeneous catalyst system comprising iridium and a halogen-containing promoter and carbon monoxide. The catalyst system further comprises platinum.

WO '759 discloses a process for carbonylation of methanol utilizing a supported catalyst comprising iridium and at least one second metal selected from ruthenium, molybdenum, tungsten, palladium, platinum and rhenium deposited on a catalyst support material.

As is clear from page 7 of this reference, the reaction takes place in the vapor phase in a heterogeneous system, in which reactive components in the vapor phase are contacted with solid phase catalyst. Importantly, as is disclosed in the sentence bridging pages 7 and 8, *none of the compounds or materials present in the carbonylation zone or reactor exists in a mobile liquid phase.*

This is clearly distinguished from the invention, in which the reaction takes place in a *liquid phase* and the catalyst system is *homogeneous*, meaning it is a single phase in which all components are solubilized. The solubility of the catalyst system is clearly set forth at page 2, lines 24-25 of the specification.

In such systems which contain water and a solvent, stability of the catalyst is frequently a problem, with the catalyst precipitating out in the reactor. In the examples set forth on pages 12 through 15 of the specification, comparative examples A through E report on a carbonylation reaction utilizing as the catalyst iridium in the absence of platinum. In these examples, iridium is deposited on the walls of the autoclave after 10 minutes in amounts ranging from light to heavy.

However, in the two examples carried out with iridium and platinum as the catalyst system according to the invention, there is either no deposit or only a trace of a deposit.

Such an improved result could not be predicted from the WO '759 patent, which utilizes a heterogeneous system

containing solid catalyst with vapor phase reactants. Thus, in WO '759, there is no problem with solubility in a liquid phase, and no problem of a solubilized catalyst depositing on the walls of the reaction vessel.

Moreover, Applicants have also shown that the use of platinum in combination with iridium increases the catalytic activity of the iridium in the carbonylation of methanol, as compared with rhodium by itself, iridium by itself and an iridium plus rhodium combination.

Thus, Applicants have not only demonstrated the use of a homogeneous catalyst system in the liquid phase, which is different from the heterogeneous catalyst system with vapor phase reactants of the cited prior art reference, but has also shown that there is an unexpected advantage to utilizing platinum in combination with iridium in a homogeneous, liquid phase catalyst system.

Withdrawal of this rejection is requested.

In view of the foregoing amendments and remarks, Applicants submit that the present application is now in condition for allowance. An early allowance of the application is earnestly solicited.

Respectfully submitted,



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